

**FOR PUBLICATION
UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

JOE KENNEDY, as successor in
interest and a personal
representative of the Estate of
Ellen Marie Kennedy; SHAWN
KENNEDY; ERIC KENNEDY; SHANNON
KENNEDY, by and through her
parent and guardian Joe Kennedy;

and CHAD KENNEDY, by and
through his parent and guardian
Joe Kennedy,
Plaintiffs-Appellants.

v.

SOUTHERN CALIFORNIA EDISON
COMPANY; COMBUSTION
ENGINEERING, INC.,
Defendants-Appellees.

Appeal from the United States District Court
for the Southern District of California
Napoleon A. Jones, District Judge, Presiding

Argued and Submitted
February 10, 2000--Pasadena, California

Opinion Filed July 20, 2000
Opinion Withdrawn September 19, 2001

Argued on Rehearing and Submitted
April 26, 2001--San Francisco, California

Filed September 26, 2001

No. 98-56157

D.C. No.
CV-95-03769-
NAJ/RBB

OPINION

Before: Robert Boochever, Michael Daly Hawkins, and
Sidney R. Thomas, Circuit Judges.

Per Curiam Opinion

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COUNSEL

Suzelle M. Smith (argued) and Don Howarth, Howarth & Smith, Los Angeles, California, for the plaintiffs-appellants.

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John A. Reding (argued) and Ned N. Isokawa, Paul, Hastings, Janofsky & Walker, San Francisco, California, for the defendants-appellees.

Alfred R. Mollin (argued), U.S. Department of Justice, Washington, D.C., for amicus United States in support of the defendants-appellees.

Robert W. Loewen, Gibson, Dunn & Crutcher, Irvine, California, for amici Lockheed Martin Corporation, The California Chamber of Commerce, The American Chemistry Council, The National Association of Manufacturers, Philips Petroleum and Pfizer, Inc., in support of the defendants-appellees.

Charles F. Rysavy, McCarter & English, Neward, New Jersey, for amici American Public Power Association, Edison Electric Institute, National Rural Electric Cooperative Association, and Nuclear Energy Institute, in support of the defendants-appellees.

Martin S. Kaufman, Atlantic Legal Foundation, New York, New York, for amici Robert K. Adair, Bruce N. Ames, D. Allan Bromley, Patricia A. Buffler, Bernard Cohen, Bernard Gittelman, Sheldon Lee Glashow, Michael Gough, Ronald Hart, Dudley Herschbach, Lawrence Litt, A. Alan Moghissi, Rodney W. Nichols, Robert V. Pound, Norman Ramsey, Joseph P. Ring, Frederick Seitz, Edward Thorndike, Lynn H. Verhey and James D. Watson, in support of the defendants-appellees.

OPINION

PER CURIAM:

This appeal requires us to examine California tort and products liability law as made expressly applicable to actions in federal court for claims of injury arising out of nuclear power

plant incidents. Specifically, we must decide whether the district court erred in (1) refusing to give a jury instruction under Rutherford v. Owens-Illinois, Inc., 941 P.2d 1203 (Cal. 1997), in a case involving a single defendant who raises alternative possible sources of injury as a defense; and (2) dismissing claims under California product liability law. For the reasons set forth below, we affirm the district court's result.

BACKGROUND

Ellen Kennedy died in 1996 of chronic myelogenous leukemia ("CML").¹ She was forty-three years old. The plaintiffs/appellants are her husband, Joe, and their four children (collectively referred to as "Kennedy"). From 1982 to 1990, Mr. Kennedy worked as a machinist for Southern California Edison Company ("Cal Edison") at the company's San Onofre Nuclear Generating Station ("SONGS").

Plaintiffs sued Cal Edison in federal court, asserting jurisdiction pursuant to the Price-Anderson Act, 42 U.S.C. §§ 2011-2297, and seeking damages for Ellen Kennedy's wrongful death, alleging negligence on the part of Cal Edison that resulted in her exposure to radiation from SONGS. Additionally, Kennedy brought a products liability claim against Combustion Engineering, Inc. for the alleged faulty production of nuclear fuel rods. The theory of both claims was that Joe Kennedy inadvertently brought home microscopic particles of radioactive material, known as "fuel fleas," from the power plant on his clothing, hair, tools, etc. These fuel fleas,

¹ [CML] results from an acquired (not inherited) injury to the DNA of a stem cell in the [bone] marrow. This injury is not present at birth The frequency of the disease increases with age from about one in 1,000,000 children in the first 10 years of life to one in 100,000 people at age 50, to one in 10,000 people at age 80 or above.

Disease Information: Chronic Myelogenous Leukemia, The Leukemia & Lymphoma Society, available at www.leukemialymphoma.org/all_mat_detail.adp?item_id=2119&sort_order=4&cat_id=.

which according to Kennedy contained dosages in excess of the maximum allowable by federal regulations, allegedly came in contact with Mrs. Kennedy and caused her fatal cancer.

The district court granted Combustion Engineering's motion to dismiss all the products liability claims against it. The court reasoned that, inasmuch as Mrs. Kennedy was not a user or consumer of the nuclear fuel rods Combustion Engineering produced, Combustion Engineering could not have reasonably foreseen that Mrs. Kennedy would be injured by its product.

Kennedy initially sought a burden-shifting order stating that once Kennedy made an initial showing of Mrs. Kennedy's exposure to radiation from SONGS, Cal Edison and Combustion Engineering would then bear the burden of proving their conduct was not a substantial factor in causing Mrs. Kennedy's death. The district court denied this request.

In August 1997, the California Supreme Court issued its opinion in Rutherford v. Owens-Illinois, Inc., 941 P.2d 1203 (Cal. 1997), a products liability case brought by the estate of a worker who had been exposed to asbestos-containing products and subsequently died of lung cancer. Rutherford dealt in large part with the proper jury instructions on causation to be given when multiple potential causes of harm exist. In light of the decision, Kennedy requested a causation instruction "consistent with Rutherford." The district court denied Kennedy's request. Kennedy again requested a Rutherford instruction and submitted a proposal twice more before trial. Both requests were again denied.

After a fact-intensive, five-week trial, the jury returned a unanimous verdict in favor of Cal Edison and Combustion Engineering. The district court denied Kennedy's motion for a new trial. The appeal was argued and submitted on February 10, 2000. The initial panel opinion was filed on July 20, 2000.

After Cal Edison filed a petition for rehearing, with numerous amici in support, we granted rehearing and held a second round of oral argument. Jurisdiction lies pursuant to 28 U.S.C. § 1291.

STANDARD OF REVIEW

Jury instructions challenged as a misstatement of law are reviewed de novo. City of Long Beach v. Standard Oil Co., 46 F.3d 929, 933 (9th Cir. 1995). We review de novo both a dismissal without leave to amend and a dismissal with leave to amend. San Pedro Hotel Co. v. City of Los Angeles, 159 F.3d 470, 477 (9th Cir. 1998); Sameena, Inc. v. United States Air Force, 147 F.3d 1148, 1151 (9th Cir. 1998).

ANALYSIS

Under the Price-Anderson Act ("Price-Anderson" or "the Act"), our decision is guided by the substantive law of California. Price-Anderson provides federal jurisdiction over lawsuits for injuries arising out of a "nuclear incident."² Under such "public liability actions,"³ the "substantive rules for decision . . . shall be derived from the law of the State in which the nuclear incident involved occurs, unless such law is inconsistent with the provisions of [section 2210]." 42 U.S.C. § 2014(hh).

² A "nuclear incident" includes "any occurrence . . . within the United States causing . . . [any] sickness, disease, or death . . . resulting from the radioactive, toxic, explosive, or other hazardous properties of source, special nuclear, or byproduct material." 42 U.S.C. § 2014(q). It is undisputed that Mrs. Kennedy's death constitutes a "nuclear incident" for purposes of Price-Anderson.

³ "Public liability" is defined as "any legal liability arising out of or resulting from a nuclear incident." 42 U.S.C. § 2014(w). A "public liability action" is "any suit asserting public liability." 42 U.S.C. § 2014(hh). It is undisputed that Kennedy's lawsuit is a "public liability action."

Enacted in 1957 during the fledgling days of the nuclear power industry, Price-Anderson has a dual purpose: "to protect the public and to encourage the development of the atomic energy industry." 42 U.S.C. § 2012(i); Duke Power Co. v. Carolina Envtl. Study Group, Inc., 438 U.S. 59, 64 (1978). The Act accomplishes this by providing certain licensees with a system of private insurance, government indemnification, and limited liability for certain nuclear tort claims. See El Paso Natural Gas Co. v. Neztosie, 136 F.3d 610, 616 (9th Cir. 1998), rev'd on other grounds, 526 U.S. 473 (1999); see also S.Rep. No. 218, 100th Cong., 1st Sess. 2 (1987), reprinted in 1988 U.S.C.C.A.N. 1424, 1476, 1477.

Before its amendment in 1988, Price-Anderson provided the federal courts with original and removal jurisdiction only when the accident at issue was "an extraordinary nuclear occurrence" as defined by the Act at 42 U.S.C. § 2014(j). Responding to a flurry of lawsuits in federal and state courts generated by the 1979 nuclear accident at Three Mile Island, which was not considered "an extraordinary nuclear occurrence," Congress added section 2014(hh) to the Act, thereby providing the federal courts with original and removal jurisdiction for the broader category of "nuclear incidents." Neztosie, 526 U.S. at 477.

I. Rutherford Instruction

A. Background and Applicability

The basic contours of California tort law, in the context of medical injuries with multiple possible causes, are outlined in Jones v. Ortho Pharm. Corp., 209 Cal. Rptr. 456 (Ct. App. 1985). Jones involved cancer alleged to have resulted from a contraceptive pill. The California Court of Appeal stated:

The law is well settled that in a personal injury action causation must be proven within a reasonable medical probability based upon competent expert

testimony. Mere possibility alone is insufficient to establish a prima facie case A possible cause only becomes "probable" when, in the absence of other reasonable causal explanations, it becomes more likely than not that the injury was a result of its action. This is the outer limit of inference upon which an issue may be submitted to the jury.

Id. at 460.

The Book of Approved Jury Instructions for California ("BAJI") provides two general instructions on causation for cases involving injuries with multiple potential causes. It was these two instructions -- BAJI 3.76 and 3.77 -- that the district court provided to the jury, neither of which was objected to by any of the parties. BAJI 3.76 provides a definition for "cause:" "The law defines cause in its own particular way. A cause of injury, damage, loss or harm is something that is a substantial factor in bringing about an injury, damage, loss or harm." The other standard jury instruction, BAJI 3.77, pertains to multiple causation. It states:

There may be more than one cause of an injury. When conduct of two or more persons or conduct and a defective product contributes concurrently as causes of an injury, the conduct of each is a cause of the injury regardless of the extent to which each contributes to the injury. A cause is concurrent if it was operative at the moment of injury and acted with another cause to produce the injury.

Rutherford addressed the adequacy of these instructions and altered the landscape of California tort law, as it applies to the burden of proof to establish causation for asbestos-induced cancer, when it held that BAJI 3.76 and 3.77 must be augmented by an additional instruction. 941 P.2d at 1223. Though the court reiterated traditional California tort principles on causation and cited Jones's "reasonable medical prob-

ability" requirement with approval, see id. at 1214, 1219 n.1, it cited four factors in asbestos-related cancer cases that necessitated a departure from the standard jury instructions on causation.

First, the court noted that "there is scientific uncertainty regarding the biological mechanisms by which inhalation of certain microscopic fibers of asbestos leads to lung cancer" Id. at 1218. Second, it discussed the uncertainty that "frequently exists" whether a plaintiff was even exposed to dangerous asbestos fibers produced, distributed or installed by a particular defendant. The court was particularly concerned with the long latency periods of asbestos-related cancers and the many different asbestos-containing products that may have been used at the same time and in the same workplace. See id. Third, the court stated that the "question arises whether the risk of cancer created by . . . exposure to a particular asbestos-containing product was significant enough to be considered a legal cause of the disease." Id. Finally, the court noted the "impossibility" of proving "the unknowable path of a given asbestos fiber." Id. at 1219.

Despite these difficulties of proof, the California Supreme Court rejected the argument that the burden of proving causation should shift to the defendants after the plaintiffs had proven exposure.⁴ The court reasoned that the fundamental justification for a shifting of the burden -- that without such a shift all defendants might escape liability and the plaintiff be left "remediless" -- is absent in asbestos-related cancer cases. Id. at 1220 (quoting Summers v. Tice, 199 P.2d 1, 4 (Cal. 1948)). Moreover, the court pointed out that in asbestos cases, unlike traditional alternative liability cases, the complete set of possible tortfeasors is not before the court, and

⁴ At the underlying trial in Rutherford, the plaintiffs had originally requested a burden-shifting instruction based on an alternative liability theory that the California Supreme Court first approved in the celebrated case of Summers v. Tice, 199 P.2d 1 (Cal. 1948).

that given the wide ranging toxicities of different asbestos-containing products, the tortfeasors that are before the court do not display the "same symmetry of comparative fault or indivisible injury" that are the trademarks of alternative liability cases. Id. (internal quotations omitted). Having rejected burden-shifting, the California Supreme Court was presented with a Gordian knot of its own making: traditional causation principles presented asbestos-related cancer patients with insuperable barriers to recovery, yet the court had rejected alternative liability as being unsuited for these types of cases.

Rutherford cut the knot by altering, rather than shifting, the plaintiff's burden. The court held that

plaintiffs may prove causation in asbestos-related cancer cases by demonstrating that the plaintiff's exposure to defendant's asbestos-containing product in reasonable medical probability was a substantial factor in contributing to the aggregate dose of asbestos the plaintiff or decedent inhaled or ingested, and hence to the risk of developing asbestos-related cancer, without the need to demonstrate that fibers from the defendant's particular product were the ones, or among the ones, that actually produced the malignant growth.

Id. at 1219 (footnote omitted).

The burden now established, the court turned to the standard jury instructions, BAJI 3.76 and 3.77, and found them "insufficient for [the] purpose" of ensuring that jurors know the "precise contours" of this newly-crafted burden. See id. Specifically, the court found that BAJI 3.76 and 3.77

say nothing, however, to inform the jury that, in asbestos-related cancer cases, a particular asbestos-containing product is deemed to be a substantial factor in bringing about the injury if its contribution to

the plaintiff or decedent's risk or probability of developing cancer was substantial.

Without such guidance, a juror might well conclude that the plaintiff needed to prove that fibers from the defendant's product were a substantial factor actually contributing to the development of the plaintiff's or decedent's cancer. In many cases, such a burden will be medically impossible to sustain, even with the greatest possible effort by the plaintiff, because of irreducible uncertainty regarding the cellular formation of an asbestos-related cancer.

Id. at 1219-20.

To rectify these shortcomings, the court held that in addition to BAJI 3.76 and 3.77, the jury must also be instructed that

the plaintiff need not prove that fibers from the defendant's product were the ones, or among the ones, that actually began the process of malignant cellular growth. Instead, the plaintiff may meet the burden of proving that exposure to defendant's product was a substantial factor causing the illness by showing that in reasonable medical probability it was a substantial factor contributing to the plaintiff's or decedent's risk of developing cancer.

Id. at 1223 (emphasis added). It is this passage upon which the Kennedy requests for a Rutherford instruction were based.

Because we conclude that the failure to give a Rutherford instruction was harmless error on these facts, it is not necessary for us to decide whether there is an obligation to give such an instruction in cases involving exposure to substances other than asbestos.

B. Harmless Error Analysis

Harmless error review applies to jury instructions in civil cases. See, e.g., Caballero v. City of Concord, 956 F.2d 204, 206 (9th Cir. 1992) ("An error in instructing the jury in a civil case requires reversal unless the error is more probably than not harmless."). This review is "less stringent" than review for harmless error in a criminal case, but "more stringent" than review for sufficiency of the evidence. Id. at 207; City of Long Beach, 46 F.3d at 933 (citing Caballero). In harmless error review, unlike sufficiency of the evidence review, the "prevailing party is not entitled to have disputed factual issues resolved in his favor because the jury's verdict may have resulted from a misapprehension of law rather than from factual determinations in favor of the prevailing party." Caballero, 956 F.2d at 207 (emphasis added).

After careful consideration, we overturn our prior determination and hold that the district court's failure to give a proper Rutherford instruction was harmless error. "[A]n error in a trial court's jury instructions relating to the parties' respective burdens of proof ordinarily [requires] reversal." Larez v. Halcomb, 16 F.3d 1513, 1518 (9th Cir. 1994). But see Mockler v. Multnomah County, 140 F.3d 808, 812-14 (9th Cir. 1998) (improper instruction on plaintiff's burden of proof held harmless when evidence supported verdict for plaintiff in any event).

In order to sustain their burden of proof, Kennedy needed to prove by a preponderance of the evidence that the radiation from SONGS was a "substantial factor" in causing Mrs. Kennedy's CML. In Rutherford, the California Supreme Court cautioned that "[u]ndue emphasis should not be placed on the term 'substantial.'" Rutherford, 941 P.2d at 1214. As discussed above, this standard minimally requires that the contribution of the individual cause be more than negligible or theoretical. Id. at 1219.

[5] Under a preponderance of the evidence standard, the jury is only required to believe that "the existence of a fact is more probable than its nonexistence." Concrete Pipe and Prods. of Cal., Inc. v. Constr. Laborers Pension Trust for So. Cal., 508 U.S. 602, 622 (1993). Therefore, all the jury need have concluded, if given a Rutherford instruction, was that it was more probable than not that in reasonable medical likelihood the SONGS radiation was a "substantial factor" in contributing to her risk of developing CML. The SONGS radiation could only have been a "substantial factor" if it played more than an "infinitesimal" or "theoretical" part in bringing about Mrs. Kennedy's CML. On this record, no reasonable juror could have made this finding.

At trial, the defendants introduced uncontroverted expert testimony that, even if Mrs. Kennedy was exposed to "fuel fleas" as under Kennedy's exposure scenario, there is only a one in 100,000 chance that her CML was caused by the exposure.⁵ Indeed the testimony went further -- even assum-

⁵ This calculation is known as the Probability of Causation ("PC"). PC is to be distinguished from calculations quantifying increased risk. PC is an ex post calculation, i.e., we know that the individual has actually contracted the disease. The calculation reflects the odds that the extant disease was caused by the particular exposure in question. The PC that Mrs. Kennedy's CML was caused by her exposure as alleged is one in 100,000. By contrast, the ex ante risk calculation that someone (not yet sick) exposed to "fuel fleas," as Mrs. Kennedy allegedly was, would develop CML attributable to that exposure is less than one in 20,000,000.

It has been urged by distinguished amici in the scientific community that these calculations are themselves based on probabilities so remote as to represent merely theoretical conclusions. The point is not that these numbers are per se unreliable, but that when dealing with the effects of dosages as small as those presented by the "fuel fleas," precision is not currently attainable. Since the calculations present such remote causation data, we advance no view on the issue: whether the PC is actually one in 100,000, one in 92,000, or one in 108,000, makes little difference in this case. There is no argument by Kennedy, and amici do not caution, that the PC calculation is so imprecise as to lead to a deviance that could present a legally viable causation scenario.

ing that we knew for certain that Mrs. Kennedy's CML was caused by radiation (rather than some other source), there would only be a one in 30,000 chance that "fuel flea" radiation would have been the actual cause.⁶ On these facts, the contribution of the "fuel fleas," even assuming exposure and ingestion and with full knowledge that the person in question actually developed CML, only played "an `infinitesimal' or `theoretical' part in bringing about [Mrs. Kennedy's] injury." Bockrath v. Aldrich Chem. Co., 980 P.2d 398, 403 (Cal. 1999) (quoting Rutherford, 941 P.2d at 1203). Because no reasonable jury could have found that the "fuel fleas " were a "substantial factor" in causing Mrs. Kennedy's CML, the failure to give a Rutherford instruction was harmless error.

II. Products Liability Claims

Under California products liability law,

a manufacturer may be held strictly liable in tort for placing a defective product on the market if that product causes personal injury, provided that the injury resulted from a use of the product that was reasonably foreseeable by the defendants. This doctrine of strict liability extends to products which have design defects, manufacturing defects, or warning defects.

Sparks v. Owens-Illinois, Inc., 38 Cal. Rptr. 2d 739, 745 (Ct. App. 1995) (internal quotation and citation omitted) (emphasis added). Because Kennedy did not meet their burden on causation, we need not address whether California strict liability applies under the Act or whether Mrs. Kennedy was a foreseeable victim. Since Kennedy has not adequately proven

⁶ The highest percentage of CML cases any peer-reviewed article in the literature suggests is caused by radiation is five to ten percent. The cause of the remaining ninety to ninety-five percent of CML cases is currently unknown.

causation, their claim fails under both negligence and strict liability regimes.

CONCLUSION

Based on Cal Edison's uncontroverted evidence at trial, no reasonable jury could have found that the "fuel fleas" were a substantial factor in causing Mrs. Kennedy's CML, even under Kennedy's exposure scenario. Therefore, the district court's error in not giving a Rutherford instruction was harmless. Further, since causation was not adequately proven, we need not consider the applicability of California strict liability law.

AFFIRMED.